DOCUMENT RESUME

ED 230 973 CS 207 695

AUTHOR Loken, Barbara; And Others
TITLE The Effects of Direct Mail Appeals on Awareness, Readership, and Cognitive Response Content in a Community Heart Health Campaign.
SPONS AGENCY National Institutes of Health (DHHS), Bethesda, Md.
PUB DATE Aug 83
GRANT NIH-HL-25523
NOTE 30p.; Paper presented at the Annual Meeting of the Association for Education in Journalism and Mass Communication (66th, Corvallis, OR, August 6-9, 1983).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Adults; *Advertising; Behavior Patterns; Community Attitudes; Heart Disorders; *Information Dissemination; *Information Sources; Knowledge Level; *Media Research; *Pamphlets; Perception; *Public Health
IDENTIFIERS *Direct Mail Campaigns

ABSTRACT

A study was conducted to determine the effectiveness of direct mail appeals in a heart health campaign and to explore the effects of three appeal types (positive, negative, and informational) on knowledge levels and behavior patterns. Seven-hundred fifty randomly selected households were mailed brochures representing one of the three appeal types. A control group of 250 households received no brochure. A telephone survey conducted 1 week after the mailing indicated that about one-fifth of the population remembered receiving the brochure, and 14% reported actually reading all or part of it. Further, those receiving the brochure showed greater heart disease awareness and risk factor knowledge 1 week later than did those who did not receive it. None of the three appeal types proved to be superior to the others. (FL)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED230973

The Effects of Direct Mail Appeals on Awareness, Readership, and Cognitive Response Content in a Community Heart Health Campaign

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Barbara Loken

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Barbara Loken, Charles T. Salmon and John Finnegan, Jr.*
University of Minnesota

*Barbara Loken is Assistant Professor of Marketing, School of Management, University of Minnesota 55455 (612-376-2602). Charles T. Salmon is a Ph.D. student in Mass Communications, School of Journalism, University of Minnesota. John Finnegan, Jr. is Director, Media Planning, Minnesota Heart Health Program, School of Public Health, University of Minnesota.

This research was conducted as part of the Minnesota Heart Health Program, a project supported by the National Institute of Health (NIH) Grant HL-25523. The authors wish to thank Maurice Mittelmark, F. Gerald Kline, and Phyllis Pirie for their assistance in designing the study.

CS 207695

The Effects of Direct Mail Appeals
on Awareness, Readership, and Cognitive Response Content
in a Community Heart Health Campaign

A field experiment tested the effectiveness of direct mail appeals in a community heart health campaign. Randomly drawn households received a brochure representing one of three appeals (experimental conditions) or received no brochure (controls). A subsequent telephone survey indicated that "positive" and "informational" appeals were somewhat more effective than a "negative" appeal. Implications for cognitive response theory are discussed.

Marketers have for many years recognized the potential usefulness of marketing, advertising, and mass communication techniques in the non-profit sector (Kotler 1972). This view is increasingly shared by public health specialists who are involved in disseminating health information on a community-wide basis. For example, investigations of the effectiveness of combined mass media techniques in health campaigns have provided useful strategic information for media planning of primary prevention campaigns. Nevertheless, it is problematic which types of mass media may be more effective than others in achieving the desired result. Furthermore, although much literature is available on the effectiveness of television and radio in various health campaigns (Meyer 1980), far less is available examining the effectiveness of certain innovative alternative mass media techniques such as direct mail. For community-based health programs seeking to develop exportable techniques of mass media use, information regarding the marketing of such programs is highly useful.

The present research has two objectives. First, it seeks to determine the effectiveness of a direct mail appeal in health promotion and, in particular, its effectiveness in a community-wide heart health program. Specialists in public health and medicine have argued for some time that the United States ought to adopt a policy of "primary prevention" to stem the national epidemic of heart attacks and strokes (Hymowitz 1981). Primary prevention means that individuals and their community environments play a strong role in preventing the onset of coronary heart disease through control of primary risk factors. Of course, informing or educating a community about the risk factors associated with the disease is a necessary

stage in this process, and direct mail may be a cost-effective means for doing this.

A second objective of this research is to explore a number of theoretical implications of cognitive response theory regarding variables that moderate change. Previous advertising and psychological research typically finds that recall of information in a message is unrelated to amount of change or message effectiveness (e.g., Haskins 1964, Perry & Perry 1976, Petty & Cacioppo 1981, Ross 1982). In contrast, the favorableness of cognitions generated by a message (e.g., regarding past experiences or based on prior knowledge) may be a better indicant of amount of change in the advocated direction (e.g., Petty & Cacioppo 1981, Belch 1981, Greenwald 1968, Olson, Toy & Dover 1982). Further, the content of thoughts generated potentially has implications for the nature of changes made, although research pertaining to thought content has been largely ignored (Toy 1982, Olson, Toy & Dover 1982).

Research and theory bearing on each of these two research objectives are discussed below in greater detail.

RESEARCH ON DIRECT MAIL APPEALS

The majority of research into the effectiveness of direct mail appeals deals with political campaigns. Swinyard and Coney (1978), for example, studied the impact of direct mail (also in combination with canvassing) in low and high involvement political races. They found that direct mail advertising had a more powerful influence on attitudes in a low-involvement rather than a high involvement political race. In the area of health, a study by Burnett and Wilkes (1980) examined the impact on different audience

segments of different direct mail appeals relating to group insurance. These authors constructed four mailed pamphlets that varied with respect to their "fear appeal" (none, low, moderate, or high). The fear appeals were found to be variously effective depending upon certain demographic and sociopsychological characteristics segmenting the audience. For example, cluster analyses suggested that a high fear appeal was more effective among older than younger age groups, but in general, high fear appeal generated positive attitude change toward the HMO.

Although these studies have implications for determining appropriate audience segments of direct mail, little is known about the impact of direct mail in prevention-oriented heart health campaigns. Coronary heart disease is a growing concern for community-wide programs both because it is the number one cause of premature death in the United States and because it is largely preventable. Only one in ten of all heart attacks and strokes are due to "hereditary" causes. The vast majority are due to causes well within the control of individuals (Blackburn 1979, Farquhar et al. 1977). Scientific evidence makes it clear that three risk factors, in particular, contribute directly to heart disease - untreated high blood pressure, high blood cholesterol levels, and cigarette smoking (Farquhar et al. 1977). Direct mail may be a vehicle for increasing people's knowledge of these risk factors and, more generally, increasing people's awareness of heart disease as an important, and controllable, health concern.

Several questions, then, are posed in the present research regarding the effectiveness of direct mail in a heart health campaign. First, the effectiveness of the appeal in reaching a sizable proportion of people in the general population is addressed. That is, does a sizable proportion of the population remember receiving the appeal? Second, the characteristics

of individuals who say they read the appeal is addressed. It is expected, for example, that since females are more likely than males to read health information in magazines and newspapers they may also be more likely to read a heart health brochure mailed to them. Finally, the brochure should impact directly on people's knowledge of heart disease risk factors, and more generally, their awareness of heart disease as an important health concern. The impact of direct mail on these and other dependent measures is addressed.

RECALL VERSUS COGNITIVE RESPONSES

Recently, researchers have argued that message information recall is not a good indicant of amount change in an advocated direction (Petty & Cacioppo, 1981; Ross, 1982). The relationship between information recall and subsequent belief and attitude change tends to be inconsistent and often nonsignificant (e.g., Petty & Cacioppo 1981, Greenwald 1968, Ross 1982). Partly as a result of this disillusionment with recall as a moderator of change, researchers have explored effects of cognitive responses, or thoughts, generated by the message (e.g., Petty & Cacioppo 1981, Belch 1982). In general, results (e.g., Belch 1982, Petty & Cacioppo 1981, Greenwald 1968, Toy 1982) have been encouraging in that changes in the advocated direction are associated with more pro-message thoughts (e.g., "support arguments") and fewer con-message thoughts (e.g., "counterarguments").

However, the particular content of thoughts generated has less often been explored (Toy 1982, Olson, Toy & Dover 1982). Clearly, the content of thoughts generated by a message may vary depending on a number of factors,

and has strong implications for understanding the nature of change. For example, the particular message employed should influence the thought content generated. A message that focuses on the positive implications of change should yield a greater number of "positive" thoughts (in the present case, e.g., positive thoughts about the program or about behavior changes). In contrast, a message that focuses on the negative implications of not changing should yield a greater number of "negative" thoughts (e.g., "fears" generated by the messages or negative instances of heart disease). Finally, a factual or informational appeal might be expected to yield more of the specific factual content in the brochure. Note, however, that regardless of the content of the thoughts or the type of message (positive or negative), the number of pro-message arguments and, ultimately, the amount of change yielded, may conceivably be the same. Thus, both messages may advocate change, but the nature of the thoughts presumed to underlie change may vary.

STUDY OVERVIEW

These issues were examined in a field experiment by exposing people to one of three direct mail message appeals. All three messages contained the same information on heart disease risk factors and heart prevention behaviors. However, they differed in the structure of their initial focus, which was either a "positive implications", a "negative implications", or an "informational" appeal. (The specific content of these messages is described later). One week following exposure, a telephone survey was conducted to measure people's awareness of the brochure, readership, risk factor knowledge, information and source recall, and thoughts generated by

the message. The nature of both the favorableness and the content of the thoughts generated was explored.

METHODOLOGY

A posttest-only design was used to (1) examine the effectiveness of direct mail advertising in general, and (2) explore the effects of different message appeals on content of thoughts generated and the relative efficiencies of the appeals in increasing awareness and knowledge of cardiovascular risk factors.

This direct mail campaign was part of a larger overall campaign, the Minnesota Heart Health Program, a community-based health information campaign designed to reduce heart disease in Minnesota. A mid-sized Minnesota metro area was selected as the community for study.

The Treatment

A small, green brochure was designed as the vehicle for different message strategies. The outside of the brochure bore a brief title and the inside carried the message appeal. A return address, postage-free card was included as part of each brochure. It could be returned for further information.

Three different message strategies were chosen for comparison of campaign effectiveness. The first was a "positive implications" appeal designed to link positive feelings of security, happiness and belonging to a vital, healthy lifestyle. Rather than dwelling on the consequences of risk factors, this appeal focused attention on positive benefits of a healthy lifestyle.

The cover of this brochure bore the message: "You are invited to a health revolution R.S.V.P." Inside, the message began:

> There's a revolution going on and people in (the community) and all across the nation are joining! It's a revolution in healthy living, and you already may have signed up.

In contrast, the "negative implications" appeal was designed to demonstrate the consequences of cardiovascular risk factors. The message began by focusing on the disease itself. The cover of this pamphlet asked, "Is there a stroke or heart attack in your future?" Inside, the message began:

> What does the future hold for you? Career advancement? Special times with your family? Maybe a vacation next summer or retirement in a few years? What about a heart attack or stroke?

The third appeal differed from the first two by attempting to avoid an "affective" appeal, and instead relied on an "informational", straightforward factual approach. The objective was to present data linking lifestyle with cardiovascular risk factors and to present alternative behaviors to reduce risk of heart attack or stroke. The cover title reflected this approach: "The Straight Facts: You can prevent heart attacks and strokes." Inside, the message began:

> More than a million Americans have heart attacks or strokes each year. Together, heart attacks and strokes are the number one cause of premature death in adults. Yet health experts have found that only one out of ten of these happens because of inherited heart or blood pressure problems. The other nine out of ten need not occur.

Despite these differences in the initial appeal used, each message linked three specific risk factors -- smoking, high blood pressure, and consumption of high-salt, high-fat foods -- to heart disease and stressed that avoiding these factors would reduce the risk of cardiovascular disease. Thus, although the initial information was presented differently in each appeal, the factual content on risk factors was identical. Flesch readability scores indicated that all appeals were of a standard level of reading ease.

The Sample

One thousand households were randomly selected from the community telephone directory. These households were randomly assigned to one of four groups: experimental group one (positive implications appeal); experimental group two (negative implications appeal); experimental group three (informational appeal); and a control group. Brochures then were mailed to 250 households in each of the three experimental groups. Members of the control group were not mailed any brochure.

From these four groups of 250 households each, a subsample of households was selected for follow-up telephone interviews, conducted 5-10 days after the pamphlets were received. Respondents were selected from each household by a variation of the "next birthday" method of respondent selection -- a random respondent selection procedure (Salmon & Nichols 1980) -- and included people between the ages of 25 and 74.

This process resulted in a "post-test only" control group design (Campbell & Stanley 1963) with three experimental groups and one control

group. Sample sizes for the positive, negative, informational, and control conditions were 106, 104, 114, and 105, respectively.

Up to 15 callbacks were made to people in the sample. Overall, 429 interviews were completed with a response rate of 84.4 percent. Given the restrictions placed on the time between receiving the brochure and subsequent measurement, this rate was quite high. The refusal rate was 7.1 percent. The percentage of households not reached was 7.2%. The percentage of households not reached and the percentage of refusals were slightly, but not significantly ($p > .05$) greater for groups one and two than for groups three and four.

Measures

Three types of measures were asked of all respondents in the telephone interviews. These questions were designed to determine: (1) the person's general awareness and concern about cardiovascular disease, (2) heart disease knowledge, and (3) behavioral intentions. These measures are described below in more detail.

Heart Disease

Three questions measured respondents' awareness of heart disease as a health concern and their level of personal concern. The first item was an open-ended question: "What health issues are people talking about these days?" The second item was a closed-ended question inquiring about respondent's opinion of the number one cause of death in the community: cancer, heart disease, automobile accidents or something else. For both items, respondents were assigned either a value of 1 if they said heart disease, or 0 if they gave another response. The third measure in the index

asked how personally concerned respondents were about having a heart attack or stroke in the future. Scale responses ranged from 0 ("not at all concerned") to 3 ("very concerned").

Knowledge of risk factor importance was assessed with two sets of items. The first was an open-ended question: "Thinking about your own situation for a minute, how would you go about preventing heart disease in yourself? A knowledge score was obtained by subtracting the number of "incorrect" responses (e.g., more sleep) from the number of "correct" responses (e.g., cut down on salt) for each individual. "Correct" responses were those items mentioned in the brochure; "incorrect" responses were those not mentioned in the brochure. A second set of items measured the perceived importance of various risk factors in contributing to cardiovascular disease. On scales from zero ("not at all important") to ten ("very important"), these items measured the perceived importance of smoking, high blood pressure, heredity, high-fat diet and high-salt diet.

Subjects were also asked the likelihood of their engaging in prevention behaviors. Behavioral intentions were measured by asking respondents on scales from zero ("not at all likely") to ten ("very likely") the likelihood of their engaging in four prevention behaviors (cutting down on high-salt, high-fat foods, quitting smoking and having their blood pressure checked) in the next few months.

All respondents were asked to recall whether they had received a pamphlet in the mail about heart disease and, if so, whether they had read it. Individuals who remembered receiving the brochure also were asked to recall the name of the organization that sent the brochure, and whether they had mailed or planned to mail the return-addressed card for further information. Individuals who reported reading or skimming the brochure

additionally were asked to recall the content of the brochure and to describe the kinds of thoughts they had while reading it ("like about the people you know, the experiences you've had, or general feelings about it").

Finally, all respondents were asked standard demographic questions (age, sex, education, occupation, marital status, and whether they had children at home) and base-rate behavioral questions (past and present smoking status, number of cigarettes smoked, blood pressure status, and perceived healthiness of their diets).

RESULTS

Randomization Checks

Although individuals were selected randomly for the four conditions, additional checks were made to verify that the four groups were initially similar with respect to standard demographic characteristics. One-way analyses of variance verified that the four groups were nonsignificantly different ($p > .05$) with respect to age, sex, occupation, education, marital status, and whether they had children living at home. The four groups were also similar with respect to key behaviors. They were nonsignificantly different ($p > .05$) in their current rate of smoking, their past rate of smoking, and the reported healthiness of their diets. There was a tendency for the "straight facts" condition to report higher blood pressure than the other three conditions, X^2 (6) = 16.71, $p < .05$. However, a closer inspection of these data reveal that this difference is due less to a greater proportion of individuals in the "straight facts" group with high blood pressure than to a somewhat lower proportion with reported low blood pressure.

Together, these findings provide fairly strong evidence that the four groups were initially similar with respect to demographic and behavioral characteristics.

Overview of Analyses

Two sets of analyses were performed on measures of awareness, risk factor knowledge, and intentions to engage in risk factor prevention behaviors. The first set of analyses compared experimental and control conditions to determine the overall effectiveness of direct mail appeals containing heart disease prevention information. The experimental conditions (those people who received one of the brochures) were further broken down into those who reported having read or skimmed the brochure and those who did not. The brochure was expected to impact favorably on those who received it and most favorably on those who reported having read or skimmed the brochure. The second set of analyses was performed to determine the relative effectiveness of the three types of appeal (positive, negative and informational), and to analyze the nature of the thought content pertaining to each.

EFFECTS OF RECEIVING AND READING THE BROCHURE

Brochure awareness and readership

Approximately one-fifth (19%) of the sample in the experimental groups claimed to have remembered receiving the brochure and 14.4% of the sample reported having read or skimmed the brochures. Only one individual in the control condition (<1%) claimed to have seen the brochure.[1]

Heart disease awareness and concern

Chi-square and one-way analyses of variance were performed to determine the impact of the brochure on each of the measures involving heart disease awareness and concern.

As expected, there was a tendency for brochure readers to more frequently mention heart disease as a health issue "people are talking about these days" (37.0%) than nonreaders (33.1%) or controls (25.7%). However, this effect was nonsignificant ($X^2(2) = 2.57$, $p = .28$). On the other hand, effects of the other two measures were significant. As expected, those who reported having read the brochure were more likely to say heart disease is the number one cause of death in their area (60.0%) than those not having read the brochure (46.4%) and those not receiving the brochure (33.3%), $X^2(2) = 10.68$, $p < .01$. The level of personal concern for having heart disease also was higher among readers (1.54) than among nonreaders (1.34) or controls (1.14), $F(2,426) = 2.92$, $p = .05$. The brochure appears to have been effective in heightening people's awareness of heart disease as an important health concern, and appears to be strongest among those who said they read the brochure.

Knowledge

A multivariate analysis of variance was performed, contrasting the same three groups with respect to the five importance ratings of risk factors. The differences were significant $F(5,422) = 2.30$, $p < .05$. As shown in Table 1, readers were more likely than nonreaders and controls to rate high-

- - - - - - - - - - - - - - -
Insert Table 1 about here
- - - - - - - - - - - - - - -

cholesterol, high-salt, and smoking as important and less likely to rate heredity and blood pressure as important. This effect for blood pressure

was not predicted, and appears to be rated highest among non-readers. Results of univariate analyses of variance are also reported in Table 1. "Heredity" was rated as more important in control than in experimental conditions ($p < .01$). That is, people who received the brochure were more likely to have learned that heredity is not a major risk factor. However, it is unclear why, on this item, the impact was greater for nonreaders than for readers. Also, high cholesterol diet, as expected, was rated most important among those who read the brochure ($p = .06$). In response to the open-ended risk factor knowledge question, readers (.94) were more likely than nonreaders (.30) or controls (.25) to give "correct" (i.e., mentioned) relative to "incorrect" (i.e., unmentioned) responses, $F(2,426) = 3.64$, $p < .05$.

Intentions

Univariate analyses of variance, with behavioral intention scores as dependent measures, showed a significant effect for cutting salt intake ($F = 4.30$, $p < .01$) but not cutting cholesterol ($F = 1.49$, $p > .05$) or getting blood pressure checked ($F < 1$). Among smokers, no differences were found for intentions to quit smoking ($F < 1$). Thus, salt intake was the only intention measure affected. In particular, people who reported reading or skimming the brochure reported a higher likelihood of their cutting their salt intake in the next few months (8.46) than either nonreaders (6.76) or controls (6.83).

Summary

In summary, the brochure appeared to have a significant impact on people's awareness of heart disease as an important health concern and on

people's knowledge of certain risk factors associated with the disease. These effects were particularly strong among those individuals who reported having read or skimmed the brochure. However, intentions to engage in prevention behaviors were less apt to change as a result of receiving or reading the brochure.

Reader Characteristics

Readers and nonreaders of the brochures were compared with respect to standard demographic measures. Results are shown in Table 2. Consistent

Insert Table 2 about here

with previous findings in heart health research, people most resistent to heart health messages were males, people ages 45-54, less educated people, and blue collar occupations. Nevertheless, these differences between readers and nonreaders are nonsignificant, suggesting that the direct mail appeal was not received significantly more by one group than by another.

Type of Appeal

Brochure awareness and readership

The proportion of people who were aware of having received the brochure was significantly greater ($X^2(2) = 7.40$, $p < .05$) for the informational (28.1%) than for either the positive (15.1%) or negative (13.5%) appeals. The proportion of people in each group who reported reading or skimming the brochure also was higher in the informational (19.3%) than in the positive (11.3%) or negative (11.5%) conditions, but this effect did not reach significance ($X^2(2) = 3.22$, $p = .20$).

Heart disease awareness, risk factor knowledge and behavioral intentions

Chi-squares and analyses of variance were performed, contrasting the three groups with respect to their awareness of heart disease, their knowledge of risk factor importance (five dependent measures), and their intentions to engage in prevention behaviors (three dependent measures). None of these effects were significant ($p > .05$). Thus, the three appeals appear to be equally effective in changing people's awareness of heart disease, knowledge of risk factors, and behavioral intentions.

Mail-Back postcard

Intentions to mail back the postcard contained in the brochure, or self-report of already having done so, did not vary for the three appeals ($p > .05$). Further, based on the full sample of 750 people who received brochures, a nonsignificantly greater number of postcards was mailed back in the informational appeal (6.4%) than in the positive (4.0%) or negative (4.4%) appeals ($p > .05$).

Recall and Cognitive Responses

Recall

Among those individuals who read or skimmed the brochure (n's = 12, 12, and 22 for positive, negative, and informational appeals, respectively), correct recall of information in the brochure did not vary for the three groups ($p > .10$). The proportion of readers who recalled items pertaining to specific risk factors was slightly, but not significantly greater ($p = .09$) in the informational (45.2%) than in positive (22.7%) or negative (16.7%) conditions.

Finally, of the people who remembered receiving a brochure, the proportion who correctly recalled the name of the sponsoring organization was significantly greater ($X^2(2) = 7.38$, $p < .05$) for the positive appeal (46.7%) than for the negative (14.3%) and informational (12.9%) appeals.

Thought Advocacy

An analysis of pro-message and con-message thoughts revealed no significant differences in the relative number of positive to negative thoughts generated by the three appeals ($X^2(2) = 2.22$, $p > .10$).

Thought Content

As noted earlier, there may be tendencies for the three appeals to show differences in the specific content of the thoughts generated. For example, the informational appeal was expected to generate "facts" relating to risk factors. This was, in fact, the case. The informational appeal tended to generate a greater proportion of thoughts (39.5%) than the positive (19.0%) or negative (0.5%) appeals ($X^2(2) = 8.43$, $p < .05$) regarding specific risk factors (smoking, high blood pressure, diet). These thoughts were either that the brochure reminded them of someone is engaging in a risk factor behavior or that they personally should be engaging in one.

The positive appeal tended to generate more general, positive thoughts, about such things as the heart program, the brochure itself, or desire for more information. Because of the small sample sizes, a Fisher exact test was performed, comparing positive with negative, and positive with informational appeals. This difference was significant in the first case (28.6% and 0.5% for positive and negative appeals, respectively, $p = .05$) and approached significance in the second case (28.6% and 15.2%, $p < .10$).

Finally, the negative appeal generated more thoughts pertaining to negative affect (e.g., "I tore it up," "It doesn't apply to me") or reminders of specific persons (such as relatives) who have or have had heart disease. This greater proportion for the negative (57.9%) than for the positive (38.1%) or informational (26.3%) appeals approached significance ($X^2(2) = 5.43$, $p = .07$).

It should be noted that the cell sizes are somewhat small to make strong conclusions regarding thought content. However, consistent with expectations, there does appear to be a tendency for thought content to vary by appeal.

DISCUSSION

This study had two primary objectives: (1) to determine the effectiveness of direct mail appeals in heart health campaign, and (2) to explore the effects of three appeals ("positive," "negative," and "informational") on content of thoughts generated and the relative efficiencies of the three appeals on the dependent measures.

With respect to the first objective, results indicated about one-fifth of the population remembered receiving the brochure and 14% actually said they read all or part of it. Furthermore, people receiving a direct mail brochure showed greater heart disease awareness and risk factor knowledge one week later than people who did not receive a brochure. The impact of the direct mail piece was particularly strong among individuals who reported reading or skimming the brochure. Thus, direct mail appears to have potential as an effective educational vehicle in heart health campaigns. Furthermore, simply receiving the brochure (exposure) was, in general, not

as likely to create an increase in heart disease salience, concern, or knowledge as having read or skimmed the brochure.

However, only one of the intentions to engage in risk factor prevention behaviors (cutting down on salt) increased significantly as a result of receiving (or reading) the brochure. This finding is perhaps explained by the short time span between receiving the brochure and the subsequent telephone interview. This time span may have been sufficient to detect changes in knowledge, but insufficient to detect changes in behavioral intentions. Furthermore, knowledge of the linkage of risk factor to heart disease may not be a sole determinant of change. Although knowledge that a high-cholesterol diet is linked to heart disease may contribute positively toward changes in diet intentions, additional factors not mentioned in the brochure may also contribute to this change (e.g., taste of the food). Of course, several other possibilities also may account for the differential impact of the brochure on knowledge and intentions, a potential topic for future research.

With respect to the study's second objective, none of the three appeals was clearly superior to the others. None of the three groups showed greater levels of risk factor knowledge or greater intentions to engage in preventive behaviors than the others. Further, none of the three groups was more likely to desire more information on risk factors (as evidenced by the mailback postcard).

However, the informational appeal generated more awareness of receiving the brochure and greater recall of specific risk factor information. On the other hand, people who received the positive appeal were more likely to remember the name of the organization that mailed the brochure. It is unclear whether these differences were due to the content of the beginning

statements of the brochure or the affect generated as a result of this content. However, these findings are interesting in view of the type of thoughts generated about the brochure. The informational brochure tended to generate thoughts about specific risk factors linked to heart disease. Thus, the title "Straight Facts" may have encouraged readers to focus on these linkages in particular. In contrast, the positive implications appeal generated more thoughts about the benefits of the program, research, and overall favorable comments on the brochure. Thus, the "R.S.V.P.: Health Revolution" title cued people into the program, its name and objectives, and positive affect associated with them. In fact, the initials R.S.V.P. alone may have influenced some individuals to check the name of the sponsoring organization. Finally, the negative implications appeal generated more reminders of significant others with heart disease, either past or present, and negative consequences associated with the disease. Thus, explicitly asking recipients to consider the possibility of heart disease in their futures did lead to a greater number of negative associations. It is clear however, that of the three appeals, the negative appeal was probably the least effective, when all dependent variables were taken into account.

Conclusion

In conclusion, the results of this study are very encouraging for direct mail appeals in heart health campaigns. Recipients showed greater levels of awareness and knowledge of risk factors linked to heart disease. Of the three appeals, none was clearly more effective. However, the informational appeal appears to be most effective in generating awareness of receiving the brochure and recall of risk factor content. In contrast, the

positive appeal is most effective in generating recall of the program name. An analysis of thought provided an interesting comparison of foci generated by the three appeals. Future research might further investigate the nature of cognitive response content and its implications for message strategy. In fact, given that the content of the brochure was, perhaps by necessity, confounded with the type of affect presumed generated, the present results perhaps say more about the usefulness of eliciting thought content than about differences in message strategy. Furthermore, although little is known regarding the effects of thought content, results of this study suggest that analysis of content as a influence on health intention and behavior changes may be a fruitful avenue for future research.

Notes

[1]In fact, it is conceivable that this person in the control condition did see the brochure. A small proportion of the brochures were mailed to apartment buildings, and containing no apartment number, may have been left in the lobby. Furthermore, a member of the control condition may have seen a brochure that belonged to a friend or relative. However, since there was no apparent way for controlling for this potential error or determining whether the brochure was actually seen, this individual was included in analyses reported here.

Table 1

Means and Univariate F-tests
Comparing Readers, Nonreaders, and
Control Conditions, Risk Factor
Importance Ratings

	Readers $\bar{X}$	Nonreaders $\bar{X}$	Control $\bar{X}$	Univariate F-Ratio (2,426 df)
I. Importance Ratings				
Smoking	8.13	8.07	8.00	< 1
High blood pressure	8.04	8.46	8.24	1.64
High-[illegible]t diet	7.28	7.13	7.22	< 1
High cholesterol diet	7.91	7.33	7.64	2.75*
Heredity	6.54	6.25	6.99	4.45**

* $p = .06$
** $p < .01$

Table 2

"Reader" Characteristics

	Readers, Experimental Groups	Nonreaders, Experimental Groups
N =	46	278
% =	14.2%	85.8%
Sex		
Males	30.4%	47.8%
Females	69.6%	52.2%
Age		
25-34	43.5%	38.5%
35-44	21.7%	19.8%
45-54	6.5%	16.9%
55-74	28.3%	24.8%
Education		
High School or less	30.5%	35.3%
Some College or Vocational	32.6%	34.1%
College Degree	37.0%	30.6%
Occupation		
Unemployed	28.3%	23.0%
Blue Collar	15.2%	24.1%
Clerical/Sales	28.3%	22.3%
Professional	28.3%	30.6%

All differences between Readers and Nonreaders were nonsignificant ($p > .05$)

References

Belch, G.E. (1981), "An examination of comparative and noncomparative television commercials. The effects of claim variation and repetition on cognitive response and message acceptance," Journal of Marketing Research, 18, 333-349.

Blackburn, H. (1979), "Preventive cardiology in practice: Minnesota studies on risk factor reduction," in Heart Disease and Rehabilitation, M.L. Pollock and D.H. Schmidt, eds. Boston, MA: Houghton Mifflin.

Burnett, J.J. and Wilkes, R.E. (1980), "Fear appeals of segments only," Journal of Advertising Research, 20, 21-24.

Campbell, D.T. and Stanley, J.C. (1963), Experimental and Quasi-Experimental Designs for Research, Chicago, IL: Rand McNally.

Farquhar, J., et al. (1977), "Community education for cardiovascular health," Lancet, 1, 1192.

Greenwald, A.G. (1968), "On defining attitude and attitude theory," in Psychological Foundations of Attitudes, A.G. Greenwald, T.C. Brock, & T.M. Ostrom, eds. New York: Academic Press.

Haskins, J.B. (1964), "Factual recall as a measure of advertising effectiveness," Journal of Advertising Research, 4, 2-8.

Hymowitz, N. (1981), "Behavioral approaches to preventing heart disease: Risk factor modification," International Journal of Mental Health, 9, 27-69.

Kotler, P. (1972), "A generic concept of marketing," Journal of Marketing, 36, 46-54.

Meyer, M., et al. (1980), Health Education by Television and Radio. Munich: Internationales Zentralinstitut fur das Jugend - und Bildungsfernsehen.

Olson, J.C., Toy, D.R. & Dover, P.A. (1982), "Do cognitive responses mediate the effects of advertising content on cognitive structure?", Journal of Consumer Research, 9, 245-262.

Perry, M. and Perry, A. (1976), "Ad recall: Biased measure of media?," Journal of Advertising Research, 17, 21-25.

Petty, R.E. and Cacioppo, J.T. (1981), Attitudes and Persuasion: Classic and Contemporary Approaches. Dubuque, Iowa: Wm. C. Brown.

Ross, H.L., Jr. (1982), "Recall versus persuasion: An answer," Journal of Advertising Research, 22, 13-16.

Salmon, C.T. and Nichols, J.S. (1980), "Respondent selection techniques for telephone surveys." A paper presented at the 1980 meeting of the Midwest Association for Public Opinion Research, Chicago, IL.

Swinyard, W.R. and Coney, K.A. (1978), "Promotional effects on a high-versus low-involvement electorate," Journal of Consumer Research, 5, 41-48.

Toy, D.R. (1982), "Monitoring Communication effects: A cognitive structure/cognitive response approach," Journal of Consumer Research, 9, 66-76.